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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,198	04/20/2004	Ying-Yao Lin	REAP0009USA4	3197
27765	7590	11/07/2005	EXAMINER	
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			NGUYEN, LINH V	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/709,198	LIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Linh V. Nguyen	2819	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 13 and 14 is/are rejected.
- 7) ☐ Claim(s) 4-12 and 15-23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/5/05</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. This office action is in response to communication 9/1/05. Claims 2 and 3 have been amended. Claims 13 – 23 have been added. Claims 1 – 23 are pending on this application.

#### ***Terminal Disclaimer***

2. The terminal disclaimer filed on 9/1/05 has been reviewed and is accepted. The terminal disclaimer has been recorded.

#### ***Claim Objections***

3. Claims 2 and 3 are objected as being of improper dependent form for conflicting with the subject matter of claim 1. Because claim 1 is claiming: the voltage gain is inversely proportional to exponential function such as  $\text{gain } A_v = 1/e^x$ , while claim 2 is claiming for the denominator of gain  $A_v$  is express as  $K + e^x$ , wherein  $K$  is a constant; thus if the denominator of the  $A_v$  gain is in the form  $K + e^x$ , then the gain  $A_v$  is not inversely proportional to exponential function as claimed in claim 1. Therefore claims 2 and 3 conflicted with claim 1.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 - 3 rejected under 35 U.S.C. 102(b) as being anticipated by Sidman U.S. Patent No. 5,247,398.

Regarding claim 1, Fig. 8 of Sidman discloses a variable gain amplifier (134), comprising: an amplifying stage (114) for generating an output voltage (output of 114) according to a differential input voltage (110, 112) and a gain controlling stage (132, 134, 136) for generating a gain controlling voltage (output of 136) to control a voltage gain (Col. 9 lines 55 – 65) of the amplifying stage (114) according to a first controlling voltage (AGC Reference and a second controlling voltage (Col. 9 lines 40 - 48), such that the voltage gain is proportional to a simple exponential function (9 lines 55 - 65) , the value of the simple exponential function (Col. 9 line 63) being determined by the difference between the first controlling voltage and the second controlling voltage (AGC reference, and AGC Feedback; See Col. 9 lines 40 - 48 ).

Regarding claim 2, wherein the denominator of the voltage gain of the amplifying stage can be expressed as  $\exp(K2 \cdot V_y)$ , wherein K2 is constant and  $V_y$  is the gain controlling voltage (Col. 9 line 63).

Regarding claim 3, wherein the gain controlling voltage can be expressed in the form of the difference of the first and the second controlling voltages (Col. 9 lines 40 - 48).

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6. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamasaki U.S. patent No. 5,162,678.

Regarding claim 13, Fig. 1 of Yamasaki discloses variable gain amplifier, comprising: an amplifier stage (Q5, Q6) for generating an output voltage (Vo) according to an input voltage (Vi); and a gain controlling stage (Q7, Q8) for outputting a gain controlling (Va) to determine a voltage gain (Col. 9 line 63) of the amplifier stage according to a first controlling voltage (VC) and a second controlling voltage (VC\*), such that the voltage gain changes linearly in decibel in response to the difference between the first controlling voltage and the second controlling voltage (Fig. 2).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki et al. as claim 13 above, in further view of Sidman as applied to claim 1 above.

Yamasaki as applied to claim 13 above disclosing the voltage gain is proportional to an equation expressed as  $k_1 * \exp[k_2(V_1 - V_2)]$ , in which both  $k_1$  and  $k_2$  are substantial constant (See Col. 4 line 9 equation 6). However does not disclose the voltage gain is inverse proportion to exponential function.

Fig 8 of Sidman discloses a variable gain amplifier (114) having the voltage gain  $K$  is inverse proportional to exponential function (Col. 9 lines 55 – 67).

Yamasaki and Sidman are common subject matter for controlling the gain of amplifier. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporated to incorporate the inverse proportional exponential function of the amplifier gain taught by Sidman into the amplifier if Yamasaki for the purpose of providing requisite bandwidth characteristic to provide the desired degree of immunity from variations in signal strength (Sidman Col. 9 lines 50 - 65).

#### ***Allowable Subject Matter***

9. Claims 4 – 12, and 15 - 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claims 4 and 15 , the prior art does not teach or suggest wherein the gain controlling stage comprises: a transconductance unit for generating a first current and a second current according to the first controlling voltage and the second controlling voltage, wherein the ratio between the first current and the second current is determined by the difference between the first controlling voltage and the second controlling voltage; a current transforming unit coupled to the transconductance unit for generating a third current corresponding to the first current a and a fourth current

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corresponding to the second current; and an outputting unit coupled to the current transforming unit for generating the gain controlling voltage according to the third current and the four current; wherein the value of the gain controlling voltage is determined by the difference between the first controlling voltage and the second controlling voltage.

### ***Response to Arguments***

12. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Prior Art***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

### ***Contact Information***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (571) 272-1810. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Robert Pascal can be reached at (571) 272-1769. The fax phone numbers for the organization where this application or proceeding is assigned are

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(571-273-8300) for regular communications and (571-273-8300) for After Final communications.

11/3/05

Linh Van Nguyen

A handwritten signature in black ink, appearing to read 'Linh Van Nguyen', written in a cursive style.

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